United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ventura Fish and Wildlife Office
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Ventura, California 93003

October 25, 2001

Memorandum

To: District Manager, California Desert District, Bureau of Land Management, Riverside, California

From: Field Supervisor, Ventura Fish and Wildlife Office, Ventura, California

Subject: Biological Opinion for the Transit Mixed Concrete Project, Soledad Canyon, Los Angeles County, California (6840 CA-063.50) (1-8-01-F-52R)

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of your proposed approval of a mining and reclamation plan for the operation and reclamation of a sand and gravel mine by Transit Mixed Concrete and its effects on the federally endangered arroyo toad (*Bufo californicus*) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Your August 6, 2001 request for re-initiation of formal consultation was received on August 7, 2001.

This biological opinion is based on information which accompanied your request for consultation, including the supplemental biological assessment (Bureau 2001a), our files, and discussions with your staff and personnel from and representing Transit Mixed Concrete. A complete administrative record of this consultation is on file at the Ventura Fish and Wildlife Office.

CONSULTATION HISTORY

On January 14, 1998, the Service issued a biological opinion to the Bureau of Land Management (Bureau) regarding its proposed approval of the Transit Mixed Concrete project (Service 1998). Our biological opinion stated that the action, as proposed, was not likely to jeopardize the continued existence of the endangered unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*).

The City of Santa Clarita and the Ventana Conservation and Land Trust filed suit, dated January 19, 2001, with the United States District Court alleging that the Service and Bureau violated the Endangered Species Act and Administrative Procedure Act (*City of Santa Clarita and Ventana Conservation and Land Trust v. U.S. Department of the Interior*, No. CV-01-00599 CAS (MANx)) (C.D. Calif., filed January 19, 2001). In their prayer for relief, the plaintiffs, among

other requests, asked that the court require the Service and Bureau to consult on the endangered slender-horned spineflower (*Dodecahema leptoceras*), arroyo toad (*Bufo californicus*), least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*) and the threatened California red-legged frog (*Rana aurora draytonii*) and coastal California gnatcatcher (*Polioptila californica californica*).

On April 24, 2001, the Bureau submitted a supplemental effects analysis to the Service (Bureau 2001b). In this memorandum, the Bureau requested our concurrence that the proposed project would not affect the arroyo toad, California red-legged frog, least Bell's vireo, and southwestern willow flycatcher and was not likely to adversely affect the coastal California gnatcatcher and slender-horned spineflower. On June 5, 2001, the Service concurred with the Bureau's determinations regarding the effects of the project on all of the species mentioned in the previous paragraph, with the exception of the arroyo toad. Because arroyo toads had been observed in the Santa Clara River in the vicinity of the project in May, 2001, the Service noted that it would "withhold any conclusions with regard to the arroyo toad," pending evaluation of the new information by the Bureau (Service 2001).

Critical habitat has been designated for the arroyo toad, California red-legged frog, least Bell's vireo, southwestern willow flycatcher, and coastal California gnatcatcher. However, none of the designated critical habitat for the arroyo toad, or any other federally listed species, overlaps with the action area of the Transit Mixed Concrete project.

Partially in response to the decision of the Bureau to reinitiate formal consultation on the project, based on the discovery of the arroyo toad, the plaintiffs stipulated to the dismissal of their complaint. The Joint Statement of Dismissal and Order was approved by the court on September 4, 2001. This dismissal is without prejudice to the plaintiffs' ability to challenge the reinitiated consultation process. (See Joint Statement of Dismissal and Order, page 3.)

Staff from the Service and Bureau met with representatives of Transit Mixed Concrete at the project site on several occasions. On October 11 and 12, 2001, hydrologists from the Service's Division of Engineering visited the project site and met with staff from the Service's Ventura Fish and Wildlife Office and the Bureau and representatives of Transit Mixed Concrete to review hydrological information and the proposed plan for monitoring the effects of water withdrawals on water levels in the Santa Clara River.

As a result of the meetings on October 11 and 12, 2001, Transit Mixed Concrete, the Bureau, and the Service agreed upon a general method of monitoring that the Service believed would allow more accurate measurement of flows designed to address potential effects on the arroyo toad. A draft version of the monitoring methodology was discussed during a conference call among the parties on October 16. This discussion resulted in further refinement of the methodology; these changes were provided to the Service on October 19 and are outlined in the Description of the Proposed Action section of this biological opinion.

The Service provided a draft of the biological opinion to the Bureau for its review on October 19, 2001. The Bureau returned its comments on the draft document to the Service by electronic mail, dated October 24, 2001; these comments contained additional refinement of the monitoring methodology that was developed with the Service's hydrologists. We incorporated the Bureau's comments on the draft biological opinion into this document, as appropriate.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

In August 2000, the Bureau issued a record of decision for a mining and reclamation plan, submitted by Transit Mixed Concrete, for the production of up to 56 million tons of sand and gravel over a 20-year period from lands adjacent to the Santa Clara River in the lower Soledad Canyon area of Los Angeles County. The proposed mining of a conglomerate rock formation on a ridge adjacent to the river would occur on a site that was previously mined for about 20 years. The earlier mining resulted in the disturbance of approximately 45 acres of the hillside. The existing mining site has not been reclaimed. Transit Mixed Concrete's proposed project calls for the mining of an additional 155 acres, establishing processing facilities, backfilling excess natural fines on the site, and reclaiming the mine site at the termination of mining. Clearing of vegetation will occur only prior to the onset of mining in any area to reduce the potential for erosion. As mining and backfilling or storage of fines proceeds, areas will be seeded with a plant mix designed to reduce erosion.

The mining would be conducted in two phases. Phase 1 would include the first 10 years of mining, during which up to approximately 2.15 million tons of product per year would be produced. During the second 10 years, up to approximately 4.2 million tons of product per year would be produced (Bureau 2000).

The previous biological opinion (Service 1998) contains more detailed information on the mining activities that were previously proposed. This document uses the analysis in the previous biological opinion and supplements that analysis, where appropriate, to address potential effects on the arroyo toad. The final environmental impact statement for the project describes the alternative chosen for implementation (Bureau 2000). Additionally, the County of Los Angeles, which also has regulatory authority over the project, has identified additional measures that would restrict mining activities north of Soledad Canyon Road to a greater extent than the alternative approved in the Bureau's record of decision (Bureau 2001b). All of the changes noted in this paragraph relate to activities that would be conducted north of Soledad Canyon Road; this portion of the project site is referred to as Area A. Area B is generally the southeast portion of the project site, including south of Soledad Canyon Road and the floodplain and active channel of the Santa Clara River. This biological opinion evaluates only those portions of the proposed action that are relevant to an analysis of the potential effects of this proposed project on the arroyo toad; these actions are generally restricted to the area south of Soledad Canyon Road.

Most of the locations named in this biological opinion are depicted in the attached figures. Figure 1 depicts the general area of Area B. Figure 2 shows the Santa Clara River from Area B downstream to the New Lang Gauging Station.

Water would be used in several aspects of the operations, including aggregate production, dust suppression, compaction of fines, ready-mixed production, and truck washing. The proposed mining operations would require approximately 442 acre-feet of water per year during Phase 1 and 726 acre-feet per year during Phase 2 (Bureau 2000, page 3-412). The approximate amount of water to be used per year was determined by averaging the monthly rates of use for the summer and winter months; for the purposes of this averaging, each period was considered to be 6 months long (Lorentzen pers. comm.). The Bureau notes that the water system proposed for aggregate production has been designed to conserve water. All of the water used will be recycled onsite. No point source discharge to the river is planned.

To obtain water for the mining activities, Transit Mixed Concrete has leased riparian properties. One existing production well and several proposed production wells are planned to divert underflow of the Santa Clara River to obtain water for the mining activities (Bureau 2000, final environmental impact statement, page 2-25 and figure 2.1-4; Bureau 2000, Responses to Comments, page 2-14 [Topical Response WR-1: Location of Water Wells]). The existing production well (PW-2) is and proposed wells PW-3 and PW-4 would be located southwest of Area B. Potential well locations within Area B are shown in figure 1 of the supplemental biological assessment (Bureau 2001a). Proposed wells PW-4, PW-7, PW-8, and any other well that might be placed within or east of Area B would be south of the railroad line and could be located within potential habitat of the arroyo toad. Development of each well would result in approximately 0.52 to 0.92 acre of temporary surface disturbance. The total acreage south of the railroad line subject to temporary disturbance for well development would be less than five acres.

Approximately 15 employees would be onsite during Phase 1; approximately 30 would be onsite during Phase 2. The exact number of employees would depend on the market demand for material at any given time.

The Bureau and Transit Mixed Concrete proposed numerous measures to avoid or reduce the potential adverse effects of the proposed mining and water withdrawal activities on the unarmored threespine stickleback. These measures, which are summarized in the supplemental biological assessment (Bureau 2001a) and in the following paragraphs, are also applicable to the arroyo toad and are intended to minimize impacts to this species.

Excess siltation would be reduced through the construction of engineered desilting and debris basins, V-ditches, culverts, and drop-inlet structures. These measures include a program of controlled mining practices including the periodic removal of accumulations of silt from the desilting and debris basins, and concurrent reclamation and revegetation of disturbed mining areas. The basins would be constructed and the measures implemented north of Soledad Canyon Road to prevent siltation from reaching the floodplain. A further discussion of flood potential

and siltation control is included in section 3.5 of the original biological assessment (Bureau 1996).

The Bureau and Transit Mixed Concrete have developed plans to prevent storm water pollution and spills of hazardous materials. These plans include details of construction requirements for tanks and secondary containment structures, and for inspections and operating procedures that minimize the potential for spills and leaks that would result in pollution of storm waters, ground water, or river water. A further discussion of potential pollutants and pollution prevention is included in section 3.4 of the original biological assessment (Bureau 1996).

The Bureau and Transit Mixed Concrete developed a habitat monitoring program which was designed to be protective of the unarmored threespine stickleback. This program would consist of the combined efforts of assessing local rainfall amounts, predicting surface flows based upon rainfall amounts, measuring surface flows, measuring subsurface water elevations, and monitoring habitat quality. The program will be subject to review by Transit Mixed Concrete and the resource agencies as mining proceeds. The Bureau will require Transit Mixed Concrete to prepare an annual report for its review. The report will document the effectiveness of the monitoring plan and, if appropriate, recommend modifications. The interval of monitoring, the number of monitoring stations, and other factors may be adjusted after information from the initial monitoring seasons are analyzed and reviewed with the resource agencies. A further discussion of the habitat protection plan is included in the original biological assessment (Bureau 1996).

The Bureau and Transit Mixed Concrete have proposed to coordinate with the U.S. Forest Service on its plan to control giant reed (*Arundo donax*) in the Santa Clara River near the project area. An annual survey will be conducted to assess the status of giant reed on non-Forest Service land from just above the junction of Agua Dulce Creek and the Santa Clara River to just below the River's End Trailer Park downstream of New Lang Station; any giant reed found in this area would be removed by cutting and spraying of herbicides. The original biological opinion (Service 1998) addressed the potential effects on the unarmored threespine stickleback of the removal of giant reed by Transit Mixed Concrete and includes the following term and condition:

> The Bureau shall ensure that Transit Mixed Concrete uses only herbicides approved for spraying in and near aquatic sites, such as Rodeo, within 100 feet of the Santa Clara River when water flow is present in the river. Other herbicides may be used, according to their label restrictions, to control giant reed on upper floodplain terraces.

The Bureau has proposed numerous measures to minimize the potential effects of the proposed action on the arroyo toad. These measures are described below in relation to the specific portion of the project to which they are related.

Construction of Wells and Pipeline

1. A qualified biologist shall conduct a training session for all well and pipeline installation personnel prior to construction of project wells and pipelines. The training session will focus on information on the arroyo toad, indications of its activity, limits on project disturbance, keeping the site clear of trash and debris, and notifying monitors immediately if indicators of the arroyo toad are encountered.

2. Access to well development sites will be limited to pre-existing access routes to the greatest extent possible; vehicle travel related to well development shall be limited to daylight hours (Lorentzen pers. comm.).

3. The footprint of new disturbance areas will be minimized to the maximum extent feasible; new disturbance will be monitored by an onsite biologist responsible for overseeing construction monitoring activities.

4. A water pollution control plan will be developed for pipeline installation and well development prior to site disturbance. The plan will be developed to the satisfaction of the qualified biologist.

5. The limits of project disturbance for well and pipeline installation will be clearly defined and marked in the field and reviewed by a monitoring biologist prior to initiation of work (Lorentzen pers. comm.).

6. The well development will be designed to avoid the placement of equipment and personnel within the stream channel or on sand and gravel bars.

7. If well development cannot be conducted without placing equipment or personnel in sensitive habitats, the development will be timed to avoid the breeding season or be timed so that work within or near the stream channel is conducted during the dry season.

8. Silt fencing or other sediment trapping materials will be installed around the well construction sites to minimize the transport of sediment and debris. Care will be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream. An onsite biological monitor will oversee such activities.

9. Equipment storage, fueling, and staging areas will be located on upland sites and a spill prevention control and countermeasures plan specific to the well and pipeline installation will be used.

10. No fill material will be deposited into watercourses.

11. The project biologist will visit the work site periodically throughout the duration of the well and pipeline installation to ensure that all practicable measures are being employed to avoid incidental disturbance of habitat and species.

12. The removal of native vegetation will be minimized and overseen by the onsite biological monitor.

13. To avoid attracting predators of arroyo toad, the site will be kept as clean of debris as possible.

14. Exclusionary fencing will be placed around well development sites at the direction of the onsite biological monitor. For a period of seven days, three times each day, prior to well installation, the qualified biologist will inspect the exclusionary fence lines and remove any amphibians (including arroyo toads) and reptiles collected in capture pits. (The "capture pits" are pitfall traps that would be located inside the fencing (Lorentzen pers. comm.).) Removed animals will be relocated to suitable habitat adjacent to, and outside of, the area of disturbance.

15. If it is to be installed above ground, the pipeline will be elevated to allow arroyo toads and other amphibians to cross underneath.

Water Withdrawal

The objective of these measures is to ensure that withdrawal of water from the underflow of the Santa Clara River does not affect surface water flowing to the bedrock flood control channel, in Area B, where arroyo toad tadpoles were observed in 2001. To protect arroyo toads in the bedrock channel reach of the Santa Clara River in Area B and habitat downstream of the Pole Canyon Fault, near permanent monitoring station P2 as described in section 3.2.4.3 of the biological assessment (Bureau 1996), the Bureau and Transit Mixed Concrete have proposed to implement a monitoring program and a set of action levels. The following monitoring program and action levels reflect revisions to the proposed methodology that were developed during discussions among the Bureau, the Service, and Transit Mixed Concrete through October 24, 2001.

1. Three additional monitoring wells will be installed and will be designated MW4, MW5, and MW6.

2. Two of the monitoring wells (MW4 and MW5) will be installed up gradient of the easternmost production well for the operation.

3. Monitoring well MW6 will be installed in the vicinity of permanent monitoring stations P2 and P3 as described in section 3.2.4.3 of the biological assessment (Bureau 1996).

4. These three wells will be equipped and operated to provide for continuous monitoring of ground water elevations at each well. In addition, the static groundwater elevation for each well will be recorded weekly. Static groundwater elevation is assumed to be the elevation of the groundwater 24 hours after all pumping has ceased (recovered head).

5. Data generated from these wells will be reviewed weekly by Transit Mixed Concrete.

    a. Data from monitoring well MW4, the farthest upstream well, will be monitored to ensure that the pumping at any of the production wells does not have an effect on the surface water flowing to the bedrock channel, as described in section 6.2 of the supplemental biological assessment (Bureau 2001a).

    b. The groundwater elevation in MW5 will be monitored to ensure that the groundwater elevations of MW4 are not influenced by any of the production wells.

    c. The relationship between the static groundwater elevation in MW4 and MW6 will be determined. This relationship will be used to quantify effects of project pumping on groundwater elevations at MW6. Data from MW4 and MW6 will be compared to ensure that project water extractions do not reduce surface flows downstream of Pole Canyon Fault near P2 to an extent that it would be detrimental to the riparian and aquatic habitat of the arroyo toad and other sensitive species.

6. Pumping of the easternmost production well will be regulated so that water diversions from the underflow do not affect surface water flowing into the bedrock channel. Pumping will be curtailed if water levels in MW4 and MW5 indicate that pumping effects are detrimental to the maintenance of surface flows through the bedrock channel.

The Bureau and Transit Mixed Concrete also proposed action levels at which water pumping will be modified or eliminated. Pumping of the easternmost production well shall cease if the difference between the static and pumping groundwater elevations in MW5 is greater than 0.5 feet or if a measurable difference occurs between static and pumping levels at MW4. On stabilization of groundwater elevations in MW5, pumping may be resumed at a lower extraction rate to prevent exceeding this action level.

Pumping of all project wells will cease if the weekly average groundwater elevation in MW6 drops by 0.3 foot more than the weekly average groundwater elevation drops in MW4, or if the cumulative difference in the drop in elevation during the dry season exceeds 3.5 feet. For example, if the groundwater elevation drops 1.8 feet in MW4 and more than 2.1 feet in MW6, the weekly action level would be triggered and, if the cumulative decline at MW4 is 16 feet and the decline at MW6 is more than 19.5 feet, the cumulative action level would be triggered. This action level was developed by review and analysis of empirical groundwater data collected over a

10-year period from onsite monitoring wells MW1, MW2, and MW3. The average rate of decline in groundwater elevation for these wells was 0.57 foot per week for the months of May through November. May through November is, on average, the period when declining groundwater elevations are noted in the monitoring wells. The maximum weekly decline during these months was 1.88 feet. The action level of 0.3 foot was established by taking 25 percent of the average decline (0.25 x 0.57 = 0.14) and 25 percent of the maximum decline (0.25 x 1.88 = 0.47), and averaging those values ((0.14 + 0.47)/2 = 0.3).

Pumping may be resumed when surface flows occur at the MW6 location. These measures are subject to review by Transit Mixed Concrete and the resource agencies as mining proceeds. The Bureau will require Transit Mixed Concrete to prepare an annual report that documents the effectiveness of the monitoring plan and, if appropriate, recommend modifications after information from the initial monitoring seasons are analyzed and reviewed with the resource agencies.

At the end of the rainy season, or no later than April 1st of each year, surface flows in the bedrock channel in Area B will be monitored on a weekly basis. When the surface flows of the river diminish in velocity to a point at which a low-flow gauging station can be installed in the channel, it will be installed. The gauging station will incorporate a continual monitoring system to record and document surface flow through the bedrock channel in Area B. Visual observations of the surface flows will continue weekly, until surface flows cease from natural drying. At that point, the low-flow gauging station can be removed for winter storage to protect it from winter storm floods.

STATUS OF THE SPECIES

The Service listed the arroyo toad as endangered on December 16, 1994 (59 *Federal Register* 63264). A recovery plan for the species has been published (Service 1999). Critical habitat for the arroyo toad was designated on February 7, 2001 (66 *Federal Register* 9414).

The arroyo toad is a small, dark-spotted toad of the family Bufonidae. The parotoid glands, located on the top of the head, are oval-shaped and widely separated. A light or pale area or stripe is usually present on these glands and on top of the eyes. The arroyo toad's underside is buff-colored and usually without spots (Stebbins 1985). Recently metamorphosed individuals typically blend in with streamside substrates.

Optimal breeding habitat consists of low-gradient sections of slow-moving streams with shallow pools, nearby sandbars, and adjacent stream terraces. Arroyo toads breed and deposit egg masses in the shallow, sandy pools of these streams, which are usually bordered by sand-gravel flood-terraces. Stream order, elevation, and floodplain width appear to be important factors in determining habitat capability (Sweet 1992, Barto 1999, Griffin 1999). High stream order (*i.e.*, 3rd to 6th order), low elevation (particularly below 3,000 feet), and wide floodplains seem to be positively correlated with arroyo toad population size. However, small arroyo toad populations are found along 1st and 2nd order streams at elevations up to 4,600 feet.

Outside of the breeding season, arroyo toads are essentially terrestrial and are known to use a variety of upland habitats including, but not limited to, sycamore-cottonwood woodlands, oak woodlands, coastal sage scrub, chaparral, and grassland (Holland 1995, Griffin *et al.* 1999).

Designated critical habitat for the arroyo toad encompasses 182,360 acres in 22 separate units that extend from Monterey County south to San Diego County. The final rule for the designation of critical habitat for the arroyo toad described the physical and biological features which are essential to the conservation of this species (66 *Federal Register* 9414). The primary constituent elements of critical habitat for the arroyo toad include streams with a hydrologic regime that supplies sufficient flowing water of suitable quality and sufficient quantity and at the appropriate times to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and breeding adults. The streams must have low-gradient stream segments (typically less than 4 percent) with sandy or fine gravel substrates which support the formation of shallow pools and sparsely vegetated sand and gravel bars for breeding and rearing of tadpoles and juveniles. The flooding regime must be natural or correspond sufficiently to a natural regime that will periodically scour riparian vegetation, rework stream channels and terraces, and redistribute sands and sediments, such that adequate numbers and sizes of breeding pools and sufficient terrace habitats with appropriate vegetation are maintained. Upland habitats of sufficient width and quality that include alluvial streamside terraces and adjacent valley bottomlands are necessary to provide foraging and living areas for subadults and adults; these areas must also contain loose soil and dependable subsurface moisture to allow burrowing. The lack or paucity of nonnative species that prey upon or compete with arroyo toads or degrade their habitat is an important component of critical habitat. Stream channels and upland habitats where manmade barriers do not completely or substantially impede migration to overwintering sites, dispersal between populations, or recolonization of areas that contain suitable habitat are important to maintain metapopulations of arroyo toads. Finally, habitats must have limited human-related disturbance.

Arroyo toad tadpoles feed on loose organic material such as interstitial algae, bacteria, and diatoms. They do not forage on macroscopic vegetation (Sweet 1992, Jennings and Hayes 1994). Juvenile arroyo toads rely on ants almost exclusively (Service 1999). By the time they reach 0.7 to 0.9 inch in length, they consume more beetles, along with the ants (Sweet 1992, Service 1999). Adult arroyo toads probably consume a wide variety of insects and arthropods including ants, beetles, spiders, larvae, caterpillars, and others.

Breeding typically occurs from February to July on streams with persistent water (Griffin *et al.* 1999). Female arroyo toads must feed for a minimum of approximately two months to develop the fat reserves needed to produce a clutch of eggs. Eggs are deposited and larvae develop in shallow pools with minimal current and little or no emergent vegetation. The substrate in these pools is generally sand or fine gravel overlain with silt. The eggs hatch in 4 to 5 days and the tadpoles are essentially immobile for an additional 5 to 6 days. They then begin to disperse from the pool margin into the surrounding shallow water, where they spend an average of 10 weeks. After metamorphosis (June and July), the juvenile arroyo toads remain on the bordering gravel

bars until the pool dries out (usually from 8 to 12 weeks depending on the site and rainfall). Most individuals become sexually mature by the following spring (Sweet 1992).

Individuals of this species have been observed moving approximately 1 mile within a stream reach and 0.6 mile away from the stream, into native upland habitats (Sweet 1992, Holland 1995) or agricultural areas (Griffin *et al.* 1999). Movement distances may be regulated by topography and channel morphology. Griffin (1999) reported a female arroyo toad traveling more than 948 feet perpendicular from a stream and Holland (1998) found arroyo toads 0.7 mile from a water course. At Little Rock Creek, on the desert slopes of the San Gabriel Mountains, arroyo toads were found up to approximately 120 feet from the active channel; they burrowed closer to the active stream channel as the time after the last spring rain increased (Ramirez 2000). Arroyo toads are critically dependent on upland terraces and the marginal zones between stream channels and upland terraces during the non-breeding season, especially during periods of inactivity, generally late fall and winter (Sweet 1992).

This species was historically found in at least 22 river basins in southern California from the upper Salinas River system in Monterey County to San Diego County and southward to the vicinity of San Quintin, Baja California, Mexico. They have been extirpated from an estimated 75 percent of their former range in the United States and they now occur primarily in small, isolated areas in the middle to upper reaches of streams.

The current distribution of the arroyo toad in the United States is from the San Antonio River in Monterey County, south to the Tijuana River and Cottonwood Creek Basin along the Mexican border. Although the arroyo toad occurs principally along coastal drainages, it also has been recorded at several locations on the desert slopes of the San Gabriel and San Bernardino Mountains (Patten and Myers 1992, Jennings and Hayes 1994).

Flood control projects, agriculture, off-highway vehicle use, urbanization, and campgrounds reduced many arroyo toad populations in size or caused their extirpation due to extensive habitat loss from 1920 to 1980 (Service 1999). The loss of habitat, coupled with habitat modifications due to the manipulation of water levels in many central and southern California streams and rivers, and predation from introduced aquatic species, caused arroyo toads to disappear from a large portion of their previously occupied habitat in California (Jennings and Hayes 1994). Currently, the major threats to arroyo toad populations are from stream alteration, introduction of exotic species, urban and rural development, mining, recreation, grazing, drought, wildfire, and large flood events.

The recovery plan for the arroyo toad divides its range into the northern, southern, and desert recovery units (Service 1999). The recovery plan recommends that the arroyo toad be reclassified as a threatened species when management plans have been developed and implemented to secure the genetic and phenotypic variation of the species in each recovery unit; this goal would be accomplished by conserving the necessary riparian and upland habitats on federally managed lands. Delisting would be pursued when 15 additional self-sustaining

populations of arroyo toads are known to exist, including those that occur on lands that are not managed by federal agencies.

A single metamorph was observed immediately upstream of Area B on June 25, 2001 (Farris pers. comm.). Arroyo toads are known to occur in the Santa Clara River, approximately 15 miles downstream of the project area, near the confluence with San Francisquito Creek (URS Corporation 2001). They have also been observed in San Francisquito Creek, several miles upstream from the confluence with the Santa Clara River.

ENVIRONMENTAL BASELINE

North of Soledad Canyon Road, where mining of sand and gravel would occur, the terrain rises steeply. These south-facing slopes support a coastal sage scrub - semidesert chaparral community; a portion of this slope has been disturbed by previous mining (Bureau 1996). Soledad Canyon Road and a railroad line separate the mining area from the active channel of the Santa Clara River. Because of the steep slope of the mining area and the presence of Soledad Canyon Road and the railroad, arroyo toads are unlikely to inhabit the area that is proposed for mining.

The floodplain lies south of Soledad Canyon Road. However, the active channel of the Santa Clara River has been restricted to south of the railroad line by the installation of concrete walls in several locations and the diversion of seasonal surface flows through a channel blasted from bedrock (the bedrock channel).

The implementing regulations for section 7(a)(2) define the action area of a consultation as the area that may be directly or indirectly affected by the proposed action (50 Code of Federal Regulations 402.02). Given the topography of the area, the alterations of the floodplain caused by previous human activities, the ecology of the arroyo toad, and the potential effects of the proposed action, we are considering the action area for this biological opinion to generally be the area of the floodplain that may support arroyo toads and be affected by construction and operation of the water wells and pipeline and water withdrawal by Transit Mixed Concrete. Generally, east of the railroad crossing of the Santa Clara River at Old Lang Station, near monitoring station P3 as described in section 3.2.4.3 of the biological assessment (Bureau 1996), the action area lies south of the railroad line; west of the bridge crossing, the action area lies to the north of the railroad. The action area is not located within critical habitat of the arroyo toad; it is located within the northern recovery unit for the arroyo toad, as defined by the recovery plan (Service 1999).

Hydrology

In years with normal and low rainfall, the Santa Clara River does not support surface flows from the upper reaches of the action area to the Pole Canyon Fault area near Old Lang Gauging Station. Drying of surface flows in this reach of the Santa Clara River normally begins at the

Pole Canyon Fault and progressively moves upstream. The bedrock channel is located on the most easterly and upstream reach of the river within Area B and is the last reach of river to dry. In average rainfall years, the river is dry by mid-summer and remains dry until winter rains recharge the alluvium.

Habitat Features

Within the action area, the width of the active channel of the Santa Clara River is occasionally restricted by bedrock. In these areas, riparian and wetland species, such as willows (*Salix* spp.), mulefat (*Baccharis glutinosa*), Fremont cottonwoods (*Populus fremontii*), giant reed, cattails (*Typha* spp.), and other emergents, predominate (Bureau 1996, Bransfield pers. obs.). Flood runoff occasionally scours the streambed in the action area to depths as great as 6 to 8 feet (Bureau 1996); these flood events remove large amounts of riparian and wetland vegetation. In areas where the active channel is wider, riparian vegetation is sparse or absent and extensive areas of sand, gravel, and cobble are present.

In some portions of the action area, a floodplain terrace has developed between the active channel and the adjacent steep slopes. The dominant plant species in these areas are pioneers that follow disturbance; scale-broom (*Lepidospartum squamatum*), California buckwheat (*Eriogonum fasciculatum*), and rabbit-brush (*Chrysothamnus nauseosus*) appear to be the most abundant species.

Portions of the action area and adjacent lands have been disturbed by past mining activities; stockpiled sand and gravel, bladed areas, and desilting basins remain from these operations. The area near Capra Road appears to be used frequently for recreation; evidence of off-road vehicle use and camping is obvious.

Survey Results

Prior to May 2001, arroyo toads had not been detected along the Santa Clara River in the vicinity of Soledad Canyon (Bureau 2001a). On May 25, 2001, 75 arroyo toad tadpoles were found in "three groups;" at least 3 size cohorts were present (Sandburg 2001); this report did not specify the locations of the tadpoles. On a subsequent field visit, Nancy Sandburg, the biologist who found the tadpoles on May 25, indicated that they were found between the confluence of Bear Creek with the Santa Clara River and the upstream boundary of the project area (Schroeder 2001). Three arroyo toad tadpoles and a metamorph were found during this site visit. During a visit to the site on June 29, 2001, five arroyo toad tadpoles were found at the downstream end of the bedrock channel in Area B (Bureau 2001a).

EFFECTS OF THE ACTION

Installation, Operation, and Maintenance of the Water Wells and Pipeline

Arroyo toads could be killed or injured, either on the ground's surface or in their burrows, by vehicles associated with installation, operation, and maintenance of the production and monitoring wells and pipeline. As noted previously in this biological opinion, arroyo toads are unlikely to occur north of the railroad line in Area B; however, to the west, where arroyo toads could cross under the railroad bridge at P3, they could be found to the north of the railroad line also. Foot traffic by workers associated with these activities could also kill or injure arroyo toads, although the potential for this impact to occur is probably less because foot traffic by workers would likely be fairly limited outside of construction sites. The potential for arroyo toads to be killed or injured during these activities would be greatest within riparian habitats when individuals are concentrated in those areas or at night along roads when arroyo toads are either actively foraging or moving to or away from the Santa Clara River.

The Bureau and Transit Mixed Concrete have proposed to restrict access to pre-existing access routes to the greatest extent possible, to limit vehicle use to daylight hours, to define and mark the limits of project disturbance, to conduct work within or near the stream channel or other sensitive habitats in the appropriate season, and to remove arroyo toads from within areas where wells would be installed. These measures should be effective in reducing direct mortality or injury of arroyo toads during installation, operation, and maintenance of the water wells and pipeline.

The Bureau and Transit Mixed Concrete estimate that the installation of production wells would temporarily disturb approximately five acres of upland habitat that could be used by arroyo toads. Three additional monitoring wells would also be installed in upland habitat. For the purposes of this analysis, we will assume that construction of each monitoring well would affect the same acreage as a production well; consequently, up to three acres of arroyo toad habitat may be temporarily disturbed by this activity. The amount of habitat that would be occupied by the wells and access roads has not been precisely defined, but would be substantially less than the amount of temporary disturbance.

Transit Mixed Concrete estimates that approximately 595 feet of the water pipeline would cross upland habitat of the arroyo toad and that the width of the area to be disturbed would be 3 feet. Consequently, approximately 0.04 acre of habitat would be temporarily disturbed by installation of the pipeline. Burial of the pipeline would likely disturb more habitat for a longer period than elevating it; the trench and sidecast material would be likely to cause more habitat disturbance than the crushing of vegetation associated with placing the water line on the surface.

An elevated pipeline would enable arroyo toads to move beneath it. Some potential exists that debris and vegetation growth could block passage in some areas; however, in such cases, arroyo toads may be able to use the debris to cross the water line. If the pipeline is elevated, it would

need to be buried at road crossings; however, the amount of habitat disturbance in those areas would be minimal.

Transit Mixed Concrete notes that maintenance of the pipeline would be minimal. Given the size of the pipeline and the relatively short distance that it crosses arroyo toad habitat, the disturbance associated with maintenance would likely affect a minimal amount of habitat. We anticipate that maintenance of an elevated line would likely cause less disturbance than that of a buried line because excavation would be unnecessary.

Loss or Degradation of Aquatic Habitat

Whenever heavy equipment is used in proximity to aquatic habitats, the potential exists that these sensitive areas may be destroyed or degraded to the detriment of the species associated with these habitats. The direct placement of material or runoff of sediments generated by the project into aquatic habitats can result in the loss of habitat values through filling or in the degradation of water quality. Arroyo toads are likely to be particularly sensitive to both direct filling of streams and sedimentation; the shallow pools this species requires for breeding can be destroyed by the addition of relatively small amounts of material, either by direct filling or by the alteration of the sandy and gravelly substrata that the arroyo toad requires. Arroyo toads may also be particularly vulnerable to the release of toxic materials because they generally use aquatic habitats with low flows; under such environmental conditions, toxins may be more concentrated and lethal. Additionally, the slow flows associated with breeding pools may increase the likelihood that fine sediments carried into the pools would remain there and smother eggs and tadpoles.

The Bureau has prohibited Transit Mixed Concrete from placing fill materials into water courses. Sedimentation would be reduced by limiting the removal of vegetation and by the placement of silt fencing or other sediment-trapping materials around the well construction sites. These measures should be effective in eliminating the placement of fill material into water courses; they should also reduce the amount of sediment generated by activities associated with well construction to a degree that the amount of excess material would be unlikely to degrade the aquatic habitat of the arroyo toad. Equipment storage, fueling, and staging areas will be located on upland sites; this measure would reduce the likelihood that toxic materials would inadvertently reach aquatic habitat. The Bureau will also require Transit Mixed Concrete to develop and implement, when necessary, a spill prevention control and countermeasures plan specific to the well and pipeline installation. Because this plan has yet to be developed, we cannot comment on its potential effectiveness.

Intentional or Inadvertent Impacts associated with Project Employees

Employees of Transit Mixed Concrete and other personnel associated with the project could travel outside of areas where work is occurring; such activities, particularly with vehicles, could kill or injure arroyo toads and damage their habitat. Careless workers could release toxic materials, leave garbage that would attract predators of the arroyo toad, or conduct activities outside of designated areas.

To reduce the likelihood that such impacts would occur, the Bureau and Transit Mixed Concrete have proposed to educate workers regarding the presence of the arroyo toad and the importance of keeping work sites clear of trash and remaining within authorized work areas. Such education programs, when used during other projects that could affect listed species, have been effective in preventing loss and degradation of habitat and loss of individuals. We note that the Bureau's description of the education program does not specifically note that workers would be informed of all measures that are to be implemented to protect arroyo toads.

Removal of Arroyo Toads from Well Sites

The Bureau and Transit Mixed Concrete have proposed to remove arroyo toads from the sites where wells would be constructed by pitfall trapping within exclosures around the sites for seven days prior to the onset of ground-disturbing activities. If successfully implemented, such trapping would reduce the number of arroyo toads that could be killed by installation of the wells.

The proposed trapping and removal program does present a different set of potential impacts on arroyo toads. If traps are not properly maintained, arroyo toads could be killed by ants or individuals of other animal species that enter the traps; arroyo toads may also overheat or become desiccated. If arroyo toads are moved into unfamiliar areas or to sites that lack habitat features important to their survival, moved individuals may die. The Bureau and Transit Mixed Concrete have considered at least some of these potential effects in the trapping proposal; for example, checking traps at least three times a day should reduce the potential that arroyo toads may perish in the traps.

The overall potential for the success of this measure will depend greatly on the time of year that the pitfall traps are operated. For example, if the trapping is done when arroyo toads are buried and inactive, they would be unlikely to enter pitfall traps. Finally, because relatively few arroyo toads have been observed in the project area and the area that would be trapped is relatively small, we expect the likelihood of arroyo toads being trapped to be low.

Biologists working in different areas and with different species may transmit diseases. In some cases, these introduced diseases have had catastrophic effects on amphibian populations. Some evidence exists that other environmental stresses may exacerbate the effects of diseases on amphibians.

Removal of Water from the Santa Clara River

The Analysis of Effects section of the previous biological opinion (Service 1998), the final environmental impact statement (Bureau 2000), and the biological assessment (Bureau 1996) contain general discussions of the behavior of water flow in the Santa Clara River in the action areas and the effects of the proposed water withdrawal. We have not repeated the majority of that discussion in this biological opinion; it is incorporated herein by reference. The Bureau and

Transit Mixed Concrete have proposed measures to protect the easternmost portion of Area B as a breeding area for arroyo toads. In light of the manner in which the Santa Clara River dries under existing conditions in years of dry and normal rainfall, protective measures would be effective only where stream flow normally persists late into the summer or throughout all or most of the year. The area of the bedrock channel near the upstream boundary of Area B and the stretch of river downstream of the Pole Canyon Fault near P2 meet this criterion. Transit Mixed Concrete and the Bureau have elected to focus more attention on the area of the bedrock channel because the presence of the bedrock and the siting of the area within a reach of river where access can be controlled should enable more effective monitoring and management of flows and prevent unregulated disturbance of habitat.

Under the existing conditions, the Santa Clara River does not flow during the summer and fall from the bedrock channel in Area B downstream to the Pole Canyon Fault. Under these conditions, as the river dries from the Old Lang Gauging Station upstream into the area of the bedrock channel, arroyo toad tadpoles within this reach will die of desiccation. The natural lowering of the water table is also likely to reduce the moisture content of the adjacent sandy and gravelly banks. Consequently, arroyo toad metamorphs that use these areas may also die. Their small body size is likely to render them more vulnerable to drying.

The withdrawal of water by Transit Mixed Concrete will accelerate the drying. The effects of the proposed water withdrawals on the timing of the drying of these pools cannot be accurately quantified, although one can reasonably assume that the water withdrawals can cause the pools to dry somewhat earlier in the dry season. In 2001, without pumping, the Santa Clara River dried at a rate of "100 feet or more per day" (Hovore 2001).

Consequently, as noted in the Description of the Proposed Action section of this biological opinion, the Bureau and Transit Mixed Concrete have proposed monitoring designed to assess if the withdrawal of water would affect breeding habitat of the arroyo toad at the downstream end of the bedrock channel. The Bureau and Transit Mixed Concrete have also proposed action levels that would trigger cessation or reduction of pumping. The positioning of the monitoring wells near the upstream end of the bedrock channel and upgradient of the easternmost production well (MW4 and MW5) should enable Transit Mixed Concrete and the Bureau to detect any lowering of the aquifer in time to prevent loss of flows to the bedrock channel. Maintaining flows, in a manner unaltered by the proposed action, through this reach of the Santa Clara River should ensure that arroyo toads are presented with a full opportunity to metamorphose.

Some potential exists that pumping after the drying of the pools could reduce the level of moisture in the substrates of the stream bank to the extent that metamorphs inhabiting the edges of the stream could be killed. We have no information at this time on the level of moisture needed by these individuals or how the moisture content of the banks changes after the cessation of surface flows, whether under normal circumstances or under a pumping regime.

The natural rapid drying of the Santa Clara River in the reach downstream of the bedrock channel and upstream of the Pole Canyon Fault under existing conditions may preclude the survival of arroyo toad tadpoles in many years. The reduction in flows resulting from the mining activity may contribute to a reduction in the survival of tadpoles in most years; metamorphs would be subject to the same impacts from drying of the banks discussed previously in this biological opinion.

Arroyo toads may breed in the area near and downstream of the Pole Canyon Fault near P2; this stretch of river appears to contain suitable habitat in the form of sandy and gravelly banks, riparian vegetation, and flows that persist longer into the summer. The proposed monitoring program was designed to ensure that any changes in flows caused by the pumping would not be detrimental to arroyo toads and their habitat in this reach of the Santa Clara River. However, unauthorized recreational use of this portion of the Santa Clara River may preclude arroyo toads from inhabiting this area. Because arroyo toads lay their eggs in shallow water in the open, even low levels of recreation can effectively eliminate an entire season's breeding effort in a short time.

Downstream of the railroad bridge over the Santa Clara River, the stream again enters a channel that is narrowed by artificial bank protection to the south and steep slopes to the north. Given the dense vegetation in this area, the narrow width of the floodplain, and the velocity of flows, as observed during the October 11, 2001 site visit, arroyo toads may not be present.

Pumping of all project wells will cease if the weekly average groundwater elevation in MW6 drops by 0.3 foot more than the weekly average groundwater elevation drops in MW4. Use of this action level should ensure that flows downstream of the Pole Canyon Fault are not reduced substantially.

In general, the continuous data recording proposed by the Bureau and Transit Mixed Concrete should allow pumping to be altered or stopped promptly if action levels are reached or exceeded. The prompt reaction to changing water conditions would be protective of the arroyo toad and its habitat. Additionally, monitoring rainfall, rates of recharge, and the effects of pumping during the initial stages of the mining activity, before the maximum amounts of water are needed, should allow the Bureau and Transit Mixed Concrete to assess the effectiveness of the proposed monitoring program.

Monitoring Activities

The Bureau and Transit Mixed Concrete propose to monitor water levels in the stream by establishing stations to measure the flow near the bedrock channel and the Pole Canyon Fault. Depending upon the location of these stations, arroyo toads in various life stages could be affected by trampling while the sites are being accessed or by installation of the stations. Impacts would be most severe if the stations were installed at breeding pools.

Removal of Giant Reed

The removal of giant reed from the non-Forest Service properties along the river would benefit the arroyo toad because this invasive exotic species can reduce the abundance of native vegetation and thereby degrade the overall quality of the riparian habitat upon which the species depends. The presence of additional native vegetation may increase the diversity and abundance of invertebrates and possibly improve the availability of native prey species of the arroyo toad. Removal of the giant reed may also reduce the use of water by streamside vegetation at least temporarily. Although the dynamics of the regrowth of native vegetation, additional shading, and changes in the invertebrate fauna and water flows cannot be accurately predicted at this time, we anticipate that the overall habitat quality for the arroyo toad would improve when giant reed is removed.

The actual removal of the giant reed, which would involve workers moving through riparian habitat, cutting stems, and treating the cut stumps with herbicide, could result in the injury or mortality of arroyo toads. Arroyo toads could be trampled; spilled herbicide could affect arroyo toads it contacts either on land or in water. Rodeo, which is the herbicide that Transit Mixed Concrete plans to use to control giant reed, has been approved for use in and near aquatic habitats.

The Bureau and Transit Mixed Concrete have proposed to remove giant reed during the late summer or early fall, when herbicide use is most effective. By this time, arroyo toad tadpoles will most likely have metamorphosed; consequently, herbicide entering aquatic habitat is unlikely to affect individuals of the species. Because arroyo toads would continue to occupy streamside habitats until September or October, depending on weather conditions, the removal of giant reed could result in loss of individuals in these areas.

Overall, the removal of giant reed would likely benefit the arroyo toad. The native vegetation or bare sand and gravel areas that would replace the sites occupied by giant reed will support more prey species for the arroyo toad and provide additional areas for burrowing and foraging.

Summary

Ground-disturbing activities, the removal of giant reed, and monitoring may cause injury and mortality of arroyo toads. The removal of giant reed is likely to improve habitat conditions for this species in areas where this program is vigorously and consistently implemented. The drawdown of the aquifer may result in the loss of arroyo toad eggs, tadpoles, and possibly metamorphs; the monitoring program may reduce the level of this mortality, particularly in the vicinity of the bedrock channel. Overall, because relatively few arroyo toads have been observed in the project area, we expect that few arroyo toads are likely to be killed or injured by project activities.

Because of its recent discovery in the area, the regional status of the arroyo toad is unclear. The preponderance of private property upstream of the project site will prevent easy access to a full understanding of the population dynamics of the species in this area. We speculate that arroyo toads occur in greater numbers upstream of Area B; observations from Soledad Canyon Road of the riparian habitat in this area suggest that suitable habitat for the arroyo toad is present. Within Area B, the narrow channels and overall limited upland habitat may preclude the long-term establishment of a large number of arroyo toads. Downstream of Area B, unauthorized recreational use is likely an influential factor. During and after years when rainfall is favorable for breeding, arroyo toads may move into the project area. Because of the narrow channels in portions of the action area, subsequent years of heavy rainfall may remove these colonizers.

As noted in the Status of the Species section of this biological opinion, arroyo toads occur from Monterey County to Baja California. Although a large portion of the species' habitat was destroyed prior to its listing as endangered, the arroyo toad habitat within the action area constitutes a small percentage of the available habitat for this species. Concomitantly, the number of arroyo toads present in this area comprises a small percentage of the species' overall population. For these reasons, the proposed action is unlikely to appreciably reduce the ability of the arroyo toad to survive and recover in the wild.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The County of Los Angeles may require the removal of a silt pile that was placed adjacent to the Santa Clara River many years ago. The silt pile, which is heavily vegetated with chaparral species, is located immediately south of the downstream end of the bedrock channel in which arroyo toad tadpoles were found in 2001 (Hovore and Baskin 2001). Earth-moving activities within this pile would likely introduce sediments into the aquatic habitat of the arroyo toad; such activities may also disturb upland habitat for the species. The exact nature and scale of these potential impacts would depend on the amount of silt removal that the County of Los Angeles may require.

CONCLUSION

After reviewing the current status of arroyo toad, the environmental baseline for the action area , the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the Bureau's proposed approval of Transit Mixed Concrete's mining project is not likely to jeopardize the continued existence of the species.

We have reached this conclusion because:

1. the number of individuals that would be affected by the proposed action would be relatively small;

2. a small proportion of the range of the arroyo toad would be affected by the proposed action; and

3. the Bureau and Transit Mixed Concrete have proposed measures to attempt to reduce the adverse effects of the project on the arroyo toad.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and the Bureau must make them binding conditions of the Transit Mixed Concrete project for the exemption in section 7(o)(2) to apply. The Bureau has a continuing duty to regulate the activity covered by this incidental take statement. If the Bureau fails to require Transit Mixed Concrete to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Bureau or Transit Mixed Concrete must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

The activities conducted as part of the project description may cause the injury or death of arroyo toads. The number of arroyo toads affected would depend upon the type of habitat in which the activity would occur. For example, the installation of a well in upland habitat would likely cause the take of few individuals; however, the drying of a breeding pool may kill hundreds. Because

the abundance of arroyo toads varies with the season and year, the number of individual arroyo toads that could be taken during project activities cannot be accurately predicted.

The Bureau shall contact the Service whenever the number of dead arroyo toads found outside of breeding pools in a given year reaches three and the cause of death or injury is unknown or may be due to project activities. Provided that protective measures proposed by the Bureau and Transit Mixed Concrete and the terms and conditions of this biological opinion are being fully implemented, operations need not cease while the cause of mortality is being determined. Once the cause of death or injury has been determined, the Service and Bureau shall decide whether any additional protective measures are required to address the cause of the loss of the arroyo toads. If arroyo toad eggs or tadpoles die within the bedrock channel in Area B (as shown on Figure 1) as a result of the drying of a breeding pool that was not anticipated, based on the hydrological information used in the request for consultation and this biological opinion, the Bureau shall require Transit Mixed Concrete to cease pumping immediately and shall contact the Service.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of the arroyo toad:

1. The Bureau shall ensure that the education program includes information on all relevant aspects of the protective program for the arroyo toad.

2. The Bureau shall ensure that only qualified personnel handle arroyo toads and only in an appropriate manner and for the minimal amount of time required.

3. The Bureau shall require Transit Mixed Concrete to remove arroyo toads from the areas where monitoring wells are to be installed.

4. The Bureau shall require that the water pipeline be elevated through habitat of the arroyo toad and be maintained in a manner that does not impede the movement of arroyo toads.

5. The Bureau shall ensure plans relating to the inadvertent release of hazardous materials are in place prior to the onset of ground-disturbing activities.

6. The Bureau shall ensure that effects to arroyo toads that may occur during monitoring activities are avoided or reduced.

7. The Bureau shall require Transit Mixed Concrete to reduce the level of take of arroyo toads associated with the removal of giant reed.

8. The Bureau shall ensure that protective measures for the arroyo toad are consistently implemented.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Bureau must ensure that Transit Mixed Concrete complies with the following terms and conditions, which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following term and condition implements reasonable and prudent measure 1:

   A Service-approved biologist shall conduct a training session for all project personnel prior to the onset of any ground-disturbing activities within the action area. At a minimum, the training shall include a description of the arroyo toad and its habitat; the general provisions of the Endangered Species Act; the necessity for adhering to the provisions of the Act; the penalties associated with violating the provisions of the Act; the specific measures that are being implemented to conserve the arroyo toad during mining and associated operations; and the boundaries within which the specific actions may be accomplished. The program shall also cover the restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on these species during project implementation.

2. The following terms and conditions implement reasonable and prudent measure 2:

   a. Only qualified personnel authorized under the auspices of this biological opinion shall handle arroyo toads. The Bureau or Transit Mixed Concrete shall submit the credentials of biologists who they wish to handle arroyo toads to the Service, for its review and approval, at least 15 days prior to the onset of the activities which they may be authorized to conduct.

   b. When capturing and removing arroyo toads from work sites, the Service-approved biologist shall minimize the amount of time that animals are held in captivity. During this time, they shall be maintained in a manner that does not expose them to temperatures or any other environmental conditions that could cause injury or undue stress.

   c. To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling of arroyo toads, the Service-approved biologist shall follow the Declining Amphibian Population Task Force's Code of Practice. A copy of this Code of Practice is attached. You may substitute a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water) for the ethanol solution. Care shall be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.

   d. When conducting pitfall trapping, the Service-approved biologist shall ensure that all open traps are checked in the morning before temperatures or other

environmental factors become stressful to trapped arroyo toads. If pitfall traps will be inactive, they shall either be removed from the ground and the hole backfilled or the lids shall be securely closed.

3. The following term and condition implements reasonable and prudent measure 3:

Arroyo toads shall be removed from the area of temporary disturbance around all monitoring wells to be installed in potential habitat. The procedures proposed by the Bureau and Transit Mixed Concrete, as modified by these terms and conditions, shall be implemented during the installation of the monitoring wells.

4. The following terms and conditions implement reasonable and prudent measure 4:

a. The water pipeline shall be elevated above the surface of the ground when in arroyo toad habitat. The pipeline need not be elevated when crossing extensive disturbed areas that, in the opinion of the Service-approved biologist, are unlikely to support arroyo toads; the pipeline may be buried on either side of a road when it crosses a road within arroyo toad habitat.

b. When determining the height to which the pipeline should be elevated, the Bureau shall ensure that arroyo toads would have free unimpeded passage and consider whether vegetation or debris flows could block movement of individuals.

c. At least once per year, the Service-approved biologist shall inspect the water line where it traverses habitat of the arroyo toad to determine whether debris or vegetation along the pipeline could impede movement of arroyo toads. In making this determination, the Service-approved biologist shall consider whether arroyo toads could be expected to easily cross or move around any obstructions.

d. If the Service-approved biologist determines that the movement of arroyo toads past the pipeline is substantially impeded, the Bureau shall ensure that Transit Mixed Concrete removes the blockage as soon as possible. The Service-approved biologist shall oversee the removal, using the same precautions when handling and moving arroyo toads as described elsewhere in these terms and conditions.

e. The Service-approved biologist shall ensure that any maintenance activity along the pipeline in habitat of the arroyo toad is conducted in a manner that minimizes the potential for injury or mortality. The Service-approved biologist shall define work areas in conjunction with the project manager, remove arroyo toads from harm's way (if necessary), and implement other protective measures, as described in these terms and conditions to protect arroyo toads during maintenance activities.

5. The following term and condition implements reasonable and prudent measure 5:

Prior to the onset of any ground-disturbing activity within or adjacent to arroyo toad habitat, the Bureau shall review Transit Mixed Concrete plans to prevent the inadvertent spills of hazardous materials and to remediate any such spill that may occur. These plans shall specifically discuss the implications of spills in habitat of the arroyo toad and include methods to remediate these spills in the least damaging manner.

6. The following terms and conditions implement reasonable and prudent measure 6:

a. The Service-approved biologist shall inspect areas to be used for biological, hydrological, and other monitoring prior to their use by workers.

b. Biological (other than that directed at arroyo toads), hydrological, and other monitoring shall not be conducted within or adjacent to arroyo toad breeding pools or in areas where metamorph arroyo toads are abundant. The determination of abundance of metamorphs shall be made by the Service-approved biologist. The primary criterion to be used in determining if work in a given area must be delayed is whether the monitoring activities are likely to result in mortality of several metamorphs. If the Service-approved biologist makes this determination and mortality cannot be avoided through the implementation of site- and instance-specific measures, the monitoring activity shall be delayed until such time when metamorphs are no longer abundant; alternatively, the monitoring shall be moved to another site. When in doubt regarding whether metamorphs should be considered abundant or site- and instance-specific protective measures, the Service-approved biologist shall contact the Service and Bureau for guidance; telephone contact may be used to expedite resolution of the issue.

7. The following terms and conditions implement reasonable and prudent measure 7:

a. The Service-approved biologist shall inspect areas where removal of giant reed is proposed prior to the onset of removal activities.

b. If arroyo toads or suitable habitat is present, the Service-approved biologist shall define where trails, staging areas, and other general sites of disturbance may occur. Sensitive areas, such as breeding pools and sites where numerous animals may be in burrows, shall be marked and avoided.

c. If avoidance of arroyo toads outside of breeding pools is not possible, the Service-approved biologist shall move these individuals to a nearby safe location.

d. Breeding pools that contain tadpoles or eggs of arroyo toads shall be avoided until all individuals have left the water.

e. These procedures may be used to remove salt cedar (*Tamarix* spp.) and other non-native species.

8. The following terms and conditions implement reasonable and prudent measure 8:

a. The Service-approved biologist(s) shall have the authority to stop specific work activities until appropriate corrective measures are taken when unintended effects to arroyo toads occur. If an arroyo toad is observed within a designated work area and cannot be avoided, all work shall stop until the animal leaves the work area or until it is captured and relocated by a Service-approved biologist to outside of the work area to avoid injury or mortality.

b. If Transit Mixed Concrete does not implement the protective measures for the arroyo toad, the Bureau shall suspend work on the mining operation until such time that Transit Mixed Concrete is again in full compliance.

REPORTING REQUIREMENTS

The Bureau shall provide a written annual report to the Service by January 31 of each year that this biological opinion is in effect. The report shall document the number of arroyo toads killed or injured by project activities. The report shall also provide a summary of the previous year's activities and their effects on the arroyo toad. The report shall contain information on the following: (1) the type of activities that occurred in the action area (*e.g.*, installation of facilities, monitoring); (2) the location of these activities; (3) a description of the habitat in which these activities occurred; (4) the number of arroyo toads affected; (5) steps taken to avoid or minimize effects; (6) the number of arroyo toads relocated (as defined in the reasonable and prudent measures); (7) the locations from which arroyo toads were moved and to which they were relocated; (8) the status of removal activities for giant reed; (9) the results of any surveys conducted for the arroyo toad in the previous year; (10) an analysis of the effectiveness of the monitoring plan and action levels and recommendations for any changes to the plan and action levels; and (11) any other pertinent information. The first report will be due the first January after the initiation of ground-disturbing activities.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Upon locating a dead or injured arroyo toad, initial notification must be made in writing to the Service's Division of Law Enforcement in Torrance, California (370 Amapola Avenue, Suite 114, Torrance, California 90501) and by telephone and writing to the Ventura Fish and Wildlife Office in Ventura, California, (2493 Portola Road, Suite B, Ventura, California 93003, (805) 644-1766) within three working days of the finding. The report shall include the date, time, location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Care shall be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured arroyo toads survive, the Service shall be contacted regarding their final disposition. The remains of arroyo toads shall be placed with the University of California at Santa Barbara [Contact: Mark Holmgren, University of California at Santa Barbara, EEMB Department, Santa Barbara, California, 93106, (805) 893-4098]. Arrangements regarding proper disposition of potential museum specimens shall be made with the University of California by the Bureau or Transit Mixed Concrete prior to implementation of any actions.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. The Bureau should evaluate the effects of water withdrawals on the moisture content of streamside banks to determine whether burrowing arroyo toads may be affected.

2. The Bureau should require Transit Mixed Concrete to remove any salt cedar encountered while removing giant reed.

3. The Bureau should conduct studies to increase our understanding of the population dynamics of the arroyo toad in this area. Such studies could include radio-tagging of adult arroyo toads and full surveys of this reach of the Santa Clara River during the breeding season.

4. The Bureau should work with Transit Mixed Concrete and landowners to try to control recreational activities in the Santa Clara River near Capra Road.

5. The Bureau should require Transit Mixed Concrete to restore areas temporarily disturbed by the installation of wells. Restoration should include recontouring disturbed areas, replacing topsoil, seeding with native plant species that are appropriate for the habitat type, and redistributing large rocks and woody plant material on the disturbed areas.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the Bureau's proposed approval of Transit Mixed Concrete's mining activities. As provided in 50 CFR §402.16, reinitiation of formal consultation

is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions, please contact Ray Bransfield of my staff at (805) 644-1766.

Attachments:

Figure 1 - Map of Area B
Figure 2 - Map of action area in the Santa Clara River
Fieldwork Code of Practice, Declining Amphibian Populations Task Force

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